REMARKS

Claims 13–26 are pending in the application. These claims were rejected as follows:

Claims / Section	35 U.S.C. Sec.	References / Notes
13	Objection	• (Should be listed as 13) clarification of claim language needed.
13	§101	• Non-statutory subject matter
13–26	§102(b) Anticipation	• Dufour (U.S. Patent No. 6, 661, 914).

Applicant has amended claim 13 to address the objection and 35 U.S.C. §101 rejection, and has also provided discussion for distinguishing the present invention from the art cited against it.

Applicant's use of reference characters below is for illustrative purposes only and is not intended to be limiting in nature unless explicitly indicated.

OBJECTION TO CLAIM 13

1. Applicant has amended claim 13 to provide clarification to the limitation "running into".

In the OA, on p. 2, the Examiner requested clarification for the claim limitation "running into" stated in claim 13. Applicant has amended claim 13 to clarify that the direction "running into" is a direction along a coordinate axis of the first volume data set. Support for this amendment can be found in paragraph [0029] of the Specification in combination with Figure 2.

Applicants respectfully assert that this language provides sufficient clarification and requests that the objection to the claim be withdrawn. Applicant

requests that the Examiner contact the undersigned representative should further clarification be required.

35 U.S.C. §101 CLAIM 13 STATUTORY SUBJECT MATTER FOR CLAIM 13

2. Applicant has amended claim 13 so that it provides a useful, concrete, and tangible result.

In the OA, on pp. 2–3, the Examiner rejected claim 13 as being directed to non-statutory subject matter, namely, that the claim language did not result in a claim producing a useful, concrete, and tangible result.

Accordingly, Applicant has amended claim 13 so that it includes a step of outputting, on a display, and image based (directly or indirectly) on the second volume data set. Support for this language can be found in paragraph [0023] and the monitor 12 in Figure 1.

Applicant respectfully asserts that this outputting step is sufficient to satisfy the requirement of producing a useful, concrete, and tangible result, pursuant to the standard established in *State Street Bank v. Signature Financial Group,* 149 F.3d 1368 (Fed. Cir. 1998). Based on this amended language, Applicant respectfully requests that the 35 U.S.C. §101 rejection be withdrawn from the application.

35 U.S.C. §102(b), CLAIMS 13–26 ANTICIPATION BY DUFOUR

3. Dufour fails to teach or suggest the claimed operations on a first volume data set to generate depth dependently modulated and coded volume elements for a second volume data set.

In the OA, on p. 4, the Examiner rejected independent claim 13 as being anticipated by Dufour. The Examiner stated:

> Regarding Claim[] 13, Dufour teaches a method of reconstruction of tridimensional scenes and corresponding reconstruction device and decoding system.
>
> The method and associated system for reconstruction of tridimensional scenes and corresponding reconstruction device and decoding system as taught or suggested by Dufour includes:
>
> generating a second volume data (col. 4, lines 1–7) set in which the volume elements (Abstract, lines 2–11) of the first volume data set are at least one [of] depth-dependently (col. 4, lines 34–46) modulated and coded parallel (col. 3, lines 51–64) to a main observation direction running into the first volume data set (col. 4, lines 1–7[,] 53–61); and applying a volume rendering to the second volume data set (col. 4, lines 1–7[,] 53–61).

Applicant disagrees with this characterization of the teaching of Dufour.

First, Dufour does not teach the use of a first *volume* data set via which the second volume data set is generated. The input in Dufour is two dimensional scene data taken from a video camera.

Dufour states, at 2:66 – 3:2:

> To this end the invention relates to a device for reconstructing a tridimensional scene from a bidimensional video sequence corresponding to N successive images of a real scene.

In Dufour, the depth information is then determined based on image disparity between successive images. Thus, the present claims involves a three-dimensional to three-dimensional processing, whereas Dufour involves a two-dimensional to three-dimensional processing.

Second, Dufour does not teach a depth-dependent modulation. The Examiner indicates that Dufour teaches depth dependent modulation and coding at 3:51–64. This section of Dufour states:

> The device shown in FIG. 1 is intended to allow, according to the invention, the reconstruction of scenes in three-dimensional form (3D), based on a sequence of N successive bidimensional images (2D) of said scenes. Said recovery is realized in two sub-systems 11 and 12, according to an implementation in two steps which are aimed to be iterated. The first step is a depth labeling one: each view is considered as the projection of a continuous 3D sheet, and a multi-view matching is performed independently on each view to get its disparity map, each disparity map then corresponding to the depth map of the 3D sheet (the disparity, the measurement of which provides a depth estimate, is the shift of a patch on the left (right) image relative to the right (left) image, and the output of any correspondence problem is a disparity map).

This portion clearly deals only with the method for determining depth information from the 2D images, and provides no discussion related to coding. As claim 1 requires, this information is already present in 3D form, and so this depth determination is not necessary. There is nothing in the section of Dufour cited by the Examiner that would give a hint of any form of modulation, particularly one that is done in a depth-dependent manner.

Even in the text immediately following in Dufour (3:65–67), where it talks about a second subsequent step, there is no hint of any form of modulation. Dufour states:

> The second step is a 3D model extraction one: an octree subdivision of the 3D space is performed and voxels lying in the intersection of all 3D depth sheets are kept.

Again, this fails to teach or suggest the claimed modulation.

This distinction is highlighted even more when analyzing the dependent claims. Claim 14 requires that the method further comprises using a transfer function for activating a depth-dependent 3D representation, and claim 15 requires that the transfer function has the form of a canted bar.

These claims are illustrated in Figures 4 and 5, and the advantages noted in paragraph [0017] of the present application. As discussed in paragraph [0017], the present invention allows a precise "focus" on a depth range in a direction of viewing similar, by analogy, to a depth of field in photography. In photography, the photographer can make a choice between a very shallow depth of field, in which case only a slight distance range is in focus, and a very deep depth of field, in which case a huge range of distances from the lens are in focus. As noted in paragraph [0017], however, the front and rear end of the depth range can be very precisely defined (see the bar in Figure 4), permitting significant control about what is to be displayed.

The Examiner cites to 4:47–52 and 5:1–30 as disclosing these aspects of the claimed features, however, again, Applicant notes that this section of Dufour deals with the determination of the depth itself from the 2D images, and does not deal in any way with a depth-dependent transfer function.

In the OA, on p. 5, the Examiner states, in paragraph 10, that the limitations of claim 16 have been noted in the rejection of claim 13 presented above. Applicant notes that claim 16 contains a feature directed to a transfer function that is stored in a lookup table, and Applicant can find no discussion of a transfer function stored in a lookup table noted in the rejection of claim 13.

Similarly, the Examiner states in paragraph 14, that the limitations of claims 20–22 were noted in the rejection of claim 19 presented above. Applicant notes that no discussion of the features contained in claims 20–22 can be found in the Examiner's discussion related to claim 19.

Finally, the Examiner states in paragraph 15 that the limitations of claims 23–26 have been noted in the rejections of claim 13 presented above. Applicant notes that no discussion of the features contained in claims 23–26 can be found in the Examiner's discussion related to claim 16.

With regard to the remaining claims, applicant relies on the above arguments with regard to claim 13.

For these reasons, the Applicant asserts that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the §102 rejection from the present application.

CONCLUSION

Inasmuch as each of the objections have been overcome by the amendments, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Any shortages of fees due may be charged to, and any overpayments may be credited to, deposit account no. 50-1519.

Respectfully submitted,

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